

REMARKS

Claims 1-4, 9 and 12-13 were examined in the Office Action mailed February 28, 2007. The following objections and rejections are pending:

- Objection to lack of identification of the foreign priority application in the Oath/Declaration.
- Rejection of claim 9 under 35 U.S.C. § 112 for lack of antecedent basis for the limitation “oxygen and carbon dioxide.”
- Rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Japanese patent document JP 10-296472 (“Goto”), U.S. Patent No. 4,684,779 (“Berlinger”), U.S. Patent No. 4,258,242 (“Fujimori”), U.S. Patent No. 4,320,277 (“Tairi”) and U.S. Patent No. 4,507,540 (“Hamaski”).
- Rejection of claims 2-4 under 35 U.S.C. § 103(a) as unpatentable over the combination of Fujimori and Goto, Tairi and Goto, and Berlinger and Goto.
- Rejection of claim 9 under § 103(a) as unpatentable over the combination of Hamasaki and Goto.
- Rejection of claims 12-13 under § 103(a) as unpatentable over Goto, in view of U.S. Patent No. 6,399,915 (“Mori”).

The Applicant has carefully considered the new grounds of rejection, and respectfully submit the foregoing amendments and following remarks.

1. **The Declaration is Satisfactory.** In response to the objection to lack of identification of the foreign priority application in the Oath/Declaration, the Applicant respectfully notes that 37 C.F.R. § 1.63(c) permits foreign priority information to be listed in an Application Data Sheet prepared in accordance 37 C.F.R. § 1.76. The Applicants note that this information was provided at page 2 of the original Application Data Sheet, per 37 C.F.R. § 1.76(b)(6). Accordingly, withdrawal of the pending oath/declaration objection is respectfully requested.

2. The § 112 Rejection Has Been Addressed. The Applicant has amended claim 9 to eliminate reference to oxygen, which was inadvertently not deleted in the previous amendments.

3. The Claims, As Amended, Are Patentable Over the Cited References.
The Applicant has amended claim 1 to focus the claims on the recited binary and tertiary gas mixtures (*i.e.*, deleting 100% carbon dioxide), and has incorporated dependent claim 2's limitation of carbon dioxide content to 15-90%. A conforming amendment cancelling claim 2, without prejudice, has also been made.

The Applicant respectfully traverses the pending rejections on the following grounds.

As amended, the claimed process is directed to:

- laser welding using a laser diode (*i.e.*, a low-energy laser),
- welding non-ferrous metals (especially aluminum and aluminum alloys),
- with a process gas of CO₂-Ar or CO₂-N₂ or CO₂-Ar-N₂.

Of the cited references, Goto teaches use of a process gas containing oxygen; Fujimori and Tairi teach welding of steel (ferrous) materials; and Hamasaki teaches both a process gas with oxygen and use of a fundamentally different welding process, a combination of arc and laser welding (moreover, without any suggestion toward welding with a low-power diode laser, an entirely different environment than in combined arc and laser welding).

Finally, with respect to the Berlinger reference, the Applicant notes that Berlinger discloses a form of laser welding that, at the time of Berlinger (1987),

did not include diode lasers (a patentably distinct category of laser welding with substantially different weld environment and performance characteristics).

Berlinger further discloses only welding of steels, especially galvanized steel sheets (*see, e.g.*, Berlinger at 2:19), not aluminum or aluminum alloys, which are materials one of ordinary skill would recognize as requiring substantially different weld energy deposition and process gas composition characteristics to achieve satisfactory welds. Berlinger also fails to disclose or suggest the recited process gas combinations and proportions, merely identifying possible gas constituents (Ar, He, CO₂, N₂), without identifying any specific mixtures (*i.e.*, specific gas combinations) or fractions of mixture constituents. Berlinger therefore does not disclose or suggest the diode laser welding process recited in claims 1 and 3-4.

In view of the foregoing, the Applicant respectfully submits that claims 1, 3-4, 9 and 12-13 are not anticipated and/or unpatentable over the cited references. Reconsideration and withdrawal of the pending § 102 and § 103 rejections is respectfully requested.

CONCLUSION

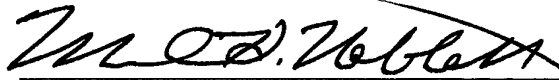
The Applicant respectfully submits that claims 1, 3-4, 9 and 12-13 are in condition for allowance. Early and favorable consideration and issuance of a Notice of Allowance for these claims is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #038724.52699US).

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Respectfully submitted,



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